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The MONTHLY REVIEW

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American Electro-Platers Society

A SOCIETY FOR THE ADVANCEMENT
OF THE
SCIENCE OF ELECTRO-PLATING

MAY, 1923

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TO BRANCH SECRETARIES

Gentlemen:

I desire to call your attention to the Constitution, Supreme Society, Article XI, Section 4, which reads as follows: "Each installment to be paid to the Supreme Secretary within fifteen days of the end of each quarter of the fiscal year, viz.: the fifteenth day of August, November, February and May."

A few of our Branches have been slightly negligent, or careless, in meeting the requirement of our Constitution in this particular.

I am making this a personal request, that every Branch Secretary mail his last quarter's per capita tax check to the Supreme Treasurer on or before the 31st day of May. I am,

Yours truly,
WALTER J. ALLEN,
Supreme President.

MONTHLY REVIEW

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EDITORIAL

SUNSHINE

By Chas. H. Proctor

Many years ago I stood beside an ancient sun dial in the court yard of an old historic castle. As I watched the sun's shadow upon the dial I read this inscription: "I mark the fleeting hours with sunshine, come journey with me, there are better hours yet to come."

As I look back through the fleeting hours that have passed with sunshine and shadow, I still believe there are better hours still to come if we only look to the sunshine and mitigate the shadow. Life is after all what we make it. We can bring sunshine into our lives, even though sometimes the shadows seem to predominate. It is true, "That as a man thinketh, so he is."

Into the American Electro-Platers' Society everyone of its votaries can make the better hours yet to come, can bring sunshine, can make life well worth the living, if they will but forget personal interest and realize that after all that it is what you do for others that counts as the great big factor in the Divine plan. Whatever we do, if we only do it with will and do it for the benefit of others, forgetting self. If we fail in our purpose and the effort is a just one, then we have accomplished something more than if the effort had never been put forth. If we used our effort for another's benefit and not for personal gains, then in the records of the ages, "A widow's mite shall measure up to more than the rich man's gold."

To the members of the American Electro-Platers' Society, through this short editorial, I want to plead for more sunshine. Make the American Electro-Platers' Society a factor in your every day life. Let it shine and reflect your best efforts to make it the success it deserves, because after all it is your society.

Education and co-operation are the links of the great chain of life that binds us together. We are no stronger than its weakest link. The Monthly Review, the society's record, can be made of untold value to the membership if you will but help to make it so. There are still splendid methods that the practical plater has developed that will prove of value to all if he would but pen the lines and so express his thoughts and the work he has accomplished.

Theory is but a dream. Unless it can be worked out upon a practical basis. In our commercial life it is production in goods at the lowest economic cost which is the answer to theory. The art of electro-deposition is advancing. We are learning more about its precepts in practice every day. More knowledge means more power. Let all that possibly can take part in the forthcoming national convention to be held in Providence, R. I. Let your employers see the wisdom of sending you, as their representative, because it will be worth while for you and them as a financial investment. History will be in the making so far as electroplating is concerned at the convention.

Let us plan from now on to make the American Electro-Platers' Society what it essentially is—the greatest practical educational society in the world.

"You must be up and doing,
With a heart for any fate,
Still achieving, still pursuing;
Learn to labor and to wait."

SUCCESSFUL CLEANING OF METALS

Read at Chicago Branch, April 14, 1923

By R. J. Hazucha

There has been a lot said and written on the subject of cleaning, and all of it is true when applied to that particular case, but when one gets into general cleaning on articles, between machine operations or before soldering,

lacquering or enameling, and before plating you will all agree with me that it is not a very simple problem for any individual to solve on account of the conditions that vary in every manufacturng establishment.

The cleaning trouble is always caused by mineral oils, greases and lubricating compounds which are only soluable in benzine, gasoline, or naptha. These solvents are prohibitive to use on account of the fire hazard, high insurance and the unwillingness of help to work alongside of these solvents, and further, practically in every case where heavy oils and greases are removed by the afore mentioned solvents, it is necessary to remove the thin, oily film left on the articles by alkali or soap solutions. By forgetting the above mentioned solvents the only other way that we can remove oils and grease successfully is by emulsification, and this can be done in many ways and in many cleaners.

It is easy to increase the efficiency of any cleaner by installing an agitator, such as an air pipe plugged on one end with ⅛-inch holes drilled about 5 inches apart and about 5 pounds of compressed air forced through the cleaning solution. Cleaning solutions agitated in this way will easily give from 100 to 500 per cent. faster and beter results than those that are not agitated, especially when soap solutions are used.

Another good method in cleaning is the use of an electric cleaner. This, when carried out right, is very efficient, but most of us abuse the electric cleaner and this becomes a very expensive proposition if not carefully handled, on account of the large consumption of electrical energy. It is easy to lead a plater, superintendent, or a manager to believe that when they install an electric cleaner their cleaning troubles are over. This, however, is a very false and expensive impression. The writer at one time was under the same false impression, and, according to his personal experience the success of an electric cleaner depends entirely on a still or agitated cleaner which should be used as a soaking tank previous to the electro-cleaner.

In choosing a cleaner for the soaking tank it is always advisable to choose a cleaner that will not tarnish the work or injure the surface and the finish of the article. Let us take for instance a bunch of stampings that have been lying

around for some time, covered with heavy lubricating oils, or parts that have been polished and buffed containing screw holes and threads which are filled with polishing and buffing composition. It is impossible to clean articles of this kind efficiently in an electric cleaner without first soaking them in a still or agitated cleaning solution before electric cleaning. Another good advantage in using the soaking solution before electro cleaning is that it reduces the time required to properly clean articles in the electric cleaner to approximately thirty seconds; whereas, if no soaking solution is used it often requires from two to five minutes for the same operation, and the finish of the articles subjected to the evolution of hydrogen gas for periods longer than thirty seconds is often ruined, especially on parts that are made out of brass or soft metals.

In the early days when there was no ball burnishing barrels there was very little soap used in the plating room, and it was usually kept away for fear that some might get into the plating solution and spoil them, but now, since the plater has a knowledge of the different soaps, he finds them to be quite an asset in the plating department, and the time is not far when he will be using a straight soap solution in the soaking tank before electro-cleaning. In fact, there are many large concerns using this method now. When soap solutions are used for soaking the plater enjoys many advantges over an alkali cleaner because he can leave the work in the soaking solution as long as he pleases without hurting the finish of the work, or, if he has aluminum to clean it is not necessary to clean them in gasoline (let the soap solution do it). Nor does he have to be afraid that his brass or copper work will tarnish, because it can hang in the soap solution for hours without any effect on the finish whatsoever. Hot and agitative soap solution will positively emulsify mineral oils and greases ten times faster than any alkali solution used today. However, the average plater objects to soap cleaning solution because, when using same after taking the work out of the solution, it is necessary that the articles are rinsed in hot water and then into a still or electrical alkali cleaner to remove the soap film, which must be done in order to obtain satisfactory cleaning.

There is a considerable amount of work being plated now days which does not get polished. When articles of this kind reaches the plating room, especially stampings, they are usually flooded with mineral oil or drawing compound and unless this work is previously cleaned in gasoline or tumbled in sawdust, and some articles are shaped so that they cannot be tumbled, it is a very difficult proposition even for the cleaning expert to solve, not alone the plater, and that's where the soap solution works to the best advantage, especially when you begin to compare costs. There is no question in the writer's mind that every cleaning department head can cut the cost of his cleaning department by efficiently studying the problem and trying out the above suggestions.

In covering the proceedure of cleaning the writer has not mentioned any formulas, because one formula would only cover a small part of the cleaning field and the plater, especially one belonging to the American Electro-Platers' Society, knows the alkali from which cleaners are made; namely, caustic soda, soda ash, caustic sized soda, ash and trisodium phosphate. These being compounded into different cleaners with different additions of silicate of soda, amonium sulphate, resin, red oil and sometimes small quantities of soap.

In conclusion the writer is positive that if the American Electro-Platers' Society, with the aid of the Bureau of Standards, ever succeed in standardizing plating departments in this country, the first step must be in cleaning, because 75 per cent. of the trouble in any plating department today is due to improper cleaning and possibly the answer will be a soap cleaner.

THE DEPOSITION OF COPPER

(All rights reserved)

There is more copper deposited than any other metal, both from the acid and alkline or cyanide solutions, and it is used for a great many different purposes. It is used as a protective coating and as a base to deposit other metals on. Heavy deposits are used in electrotyping and in the reproduction of medals, statues, engraved plates, wood blocks, set up type and many other objects made from non-con-

ducting materials, such as wax plaster of Paris and gutta percha.

A great deal of copper is used in producing seamless tubes by electro deposition. The copper is deposited on a rotating drum or cylinder and the tubes are made in all sizes, some of them weighing as much as 3 to 5 tons.

The most important application of the electro deposition of copper is in the refining process, in which the sulphate or acid solution is used with anodes of crude copper from one to two and one-half inches thick. A thin sheet of pure copper is used as the cathode and the copper is deposited on this with a current of from ten to forty amperes per square foot. Only the pure copper is deposited, all the other impurities go to the bottom as a mud, from which a considerable amount of gold and silver and other metals are taken.

The plater today is called on to use the copper deposit a great deal more than ever, because today a great many articles that used to be made from brass are now made of steel and he now uses the cyanide copper solution to a greater extent than ever. This solution gives very good results when run right.

It is not my intention to try to tell which is the best method to run a cyanide copper solution or what is the best formula to use in making one, because that would be trying to do something beyond me. Almost every plater that uses the cyanide copper solution has his own way of taking care of it, and so long as his results are what he wants, that is all that concerns him.

Several questions concerning conditions which sometimes arise when using the cyanide copper solution have been asked and in writing this paper it is with the idea of giving my views on those questions, and if they prove of value to anyone I will feel well repaid.

In using the cyanide copper solution in connection with my work, which consists mostly of cold rolled steel, I found that it had no more consideration for me than it has for anyone else, and I enjoyed all the pleasures of blisters, streaks and everything else that goes with it.

There are so many things that are blamed for causing these conditions in a cyanide copper solution that it almost

seems to be a hopeless case.

First, there is too much cyanide, then too much current, too much metal or too hot, then not enough current, not enough cyanide, not enough metal and not enough heat. These are all given as causes for the different conditions that arise in the working of the cyanide copper solution, and no doubt they all play an important part.

In using this solution for the purpose of striking or just giving the work a light flash we very seldom find these conditions to exist, but when we have to use it to put on heavy deposits so that the goods can be finished in all the high-grade finishes and look just as good as if they were made from a better grade of metal, then it seems is the time that these conditions insist on showing themselves.

Going back to the causes that have been given it would seem that a happy medium could be hit and that we might build a solution in between that would have neither too much nor too little of these different things but would have just the right amount of each.

A cyanide copper solution that is made up under these conditions and the right amount of current used when it is being worked will very soon prove itself to be almost a self-sustaining solution and you will find that the bad conditions have no room to exist. I find that a solution that contains from 2½ to 3 ozs. of metal per gallon with just enough free cyanide to keep the anodes clear and heated to about 120° F. can be run with a current of 10 amperes per square foot and a pressure of from 1 to 2 volts, and the work can be run from 5 minutes to 5 hours without showing any of those bad conditions which we have spoken about, and you will find the solution very easy to take care of.

CAUSES OF BLISTERING IN CYANIDE COPPER BATHS

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One of the most used solutions in the electro-plating industry is the cyanide copper, and in my opinion, the simplest of the cyanide baths to operate. This solution often gives trouble on cast iron, steel and britannia ware. The commonest of these troubles is blistering. There are three causes for this evil, namely: First, uncleanliness; second, insufficient metal; third, excess of free cyanide. The plater

by close observation may determine which one of these common causes are at the time directly responsible.

First—I deem it necessary for me to say but little on cleanliness, as this is the first lesson to the young man or boy when he enters the plating room employ. If the articles to be plated are free from grease after being washed in any of the alkali cleaners that are on the market today, then pickled with either the muriatic or sulphuric acid pickle, the trouble does not originate from the source.

Second—The metal content of the solution is of vital importance and should not contain less than three (3) ounces per gallon at any time and may contain as high as four and one-half (4½) ounces per gallon without injury to the bath. In adding copper to the bath from time to time it is the best and safest method to dissolve the carbonate of copper or cyanide of copper thoroughly before adding to the bath.

I have known of platers to add the metal to the bath and then add cyanide of potassium until the solution appears clear. This directly is the cause of a rough deposit and will also cause pitting, owing to the fact that some of the metal settles in the bottom of the bath without dissolving.

To determine the amount of copper per gallon the plater may remove some of the solution, separate the copper and weigh it. I have never had to resort to this method because I have always timed the work. When the solution failed to deposit sufficient copper in the required length of time to stand either acid dipping or polishing I knew the bath needed a new addition of metal.

I have operated for several years fourteen baths, two hundred (200) gallons each, and never have trouble. This is owing to the fact that they are operated systematically.

If one solution required either metal or cyanide, within two hours all the solutions would be the same, therefore, when one solution requires metal, I replenish all the baths with equal amount of metal, thus insuring equal deposit of all the baths.

Third—Free cyanide is governed by the condition of the anodes. If the anodes are a bood quality, just enough free cyanide is used to keep them clean. If the plater tries

to keep copper anodes clear of inferior quality he will have the bath overloaded with free cyanide, and although the bath may have the metal content after the fixed length of time, the bath has failed to deposit the desired amount of copper. The result is little blisters that raise up when polishing. It is necessary to add free cyanide from time to time, but I have always added it in very small quantities—two or three times a day should the bath require it.

In conclusion I will say that no special voltage is required for cyanide copper plating. I always run the rheostat up to full current until the articles are all covered, then reduce the current just enough to prevent burning. The bath is used hot, not exceeding 120° Fahrenheit. The use of soda of any kind is unnecessary, excepting where a new bath is made.

BY A MEMBER OF THE N. Y. BRANCH.

SEPARATION OF GOLD AND PLATINUM

Jas. Simpson, Providence-Attleboro Branch

In the factories where the manufacture of articles of platinum and gold is carried on there is so little work in the line of electro-plating or coloring that the plater is sometimes called upon to refine tthe filings, trimmings, etc., that accrue during the process of manufacture.

Although not directly in the line of plating it is so closely allied to the trade that the plater working on this class of work should have a little knowledge on the separation of these metals in case he was called upon to separate them.

The first procedure is to pass a magnet through the mixture to remove any iron or steel.

If the metals are in the form of fine filings they can be placed in aqua regia, in the proportion of three parts hydrochloric acid to one part intric acid and subjected to gentle heat until dissolved.

The silver alloyed with the gold will be precipitated as a chloride.

The solution can now be filtered, the silver chloride collected and reduced to metallic silver by placing small strips of zinc upon the silver chloride and adding a small amount of hydrochloric acid. The silver will assume a grayish-

brown color when it has all been reduced to metallic silver and can be washed, dried and melted.

Now, on the other hand, if the metals to be refined or separated are in larger pieces, such as trimmings, etc., and were placed in the aqua regia the silver chloride would form an insoluble compound on the surface of the gold and the process would be a long, tedious and difficult one.

Therefore we resort to the process known as quartation, that is, to add three parts by weight of silver to one of the metals to be separated.

These are placed together in a crucible in a gas or electric furnace with a small amount of borax and when thoroughly melted are poured from a height of three or four feet into a receptacle containing water that is being agitated. This will granulate the metal and make it more readily attacked by the acid.

The most convenient way to do this is to have one person stair the water with a long stick while the second person pours the metal.

After the metal is granulated it is pickled in a sulphuric acid pickle, one part acid to about six of water, to remove the flux.

It is then placed in nitric acid until all action ceases, fresh acid being added from time to time as the old acid becomes saturated with metal.

If there is no action upon the metal after adding fresh acid, the acid may be poured into another recepticale and saved, as this contains the silver.

The gold and platinum will be found in a finely divided form.

It is washed in clean water and placed in aqua regia, the same as in the case with filings, only there will be no silver, the silver having previously been dissolved in the nitric acid.

Subject to a gentle heat until dissolved.

At this point the filings and the other mixture can be proceeded with in the same manner.

Boil the aqua regia containing metals down until of the consistence of syrup, this will evaporate the free acid and give a smaller quantity to work with, then add a small quantity of water. Next dissolve as much ammonium chloride

in clean water as the water will dissolve and add a slight excess to the above and the platinum will be precipitated as a chloride.

After allowing to settle for a while, take a small amount of the clear liquid from the top and place in a test tube and add a little of the ammonium chloride solution. If a percipitate is formed add more of the ammonium chloride solution to the mixture to make sure all the platinum has been precipitated.

Next pour off the clear liquid from the platinum and save it and wash the platinum chloride several times in clean water and also save these rinsings.

Care must be taken that the platinum chloride is thoroughly washed, as a small amount of gold in the platinum after it is melted will make it unworkable.

If the last washing is made with alcohol it will facilitate the drying of the chloride.

To recover the gold from the liquid that has been poured off the platinum chloride,

To recover the gold from the liquid that has been poured off the platinum chloride, dissolve ferrous sulphate of iron in water and add, the gold will be precipitated as a yellowish-brown powder—this is metallic gold.

After settling the clear liquid should be tested with the iron sulphate to make sure all the gold has been precipitated.

Pour off the liquid and cover the gold with hydrochloric acid to remove any iron that may have been precipitated.

Wash thoroughly and dry; the gold is now ready for melting.

After the platinum chloride has thoroughly dried it should be wrapped in tissue paper and placed in a crucible made for the purpose.

The reason for placing the platinum chloride in tissue paper is to prevent a loss when the flame is applied to it, as it is very apt to blow the chloride away.

An oxygen torch is used for the melting. A soft flame is applied at first and by the time the paper has burned away the chloride has crust upon the surface. After this crust has formed the full pressure of the flames may be applied and the platinum melted.

We have now left the acid containing the silver which dissolved out after granulating the metals.

To recover this take thin strips of copper and place in the solution and the silver will be reduced to a finely divided metal.

After all the silver is reduced, which can be best determined by taking a small quantity of the clear mixture in a test tube and adding a small quantity of hydrochloric acid, it should be thoroughly washed and dried, it will then be ready for melting.

BRANCH REPORTS

Newark Branch

Newark Branch held its regular meeting on May 4, President Oliver J. Sizelove presiding, 18 members and two visitors being present.

Mr. A. Pflomm presented his transfer from N. Y. Branch to Newark Branch and was duly received in due form. The following applications were read:

Benjamin W. Gilchrist, LeRoy E. Sullivan, Henry W. McGovern, Joseph A. Weiss, W. S. Hults, Robert Pecoraro, and voted to take the usual course.

Mr. H. H. Smith gave a final report on the banquet, it being a most successful one, there being 311 in attendance. Mr. E. W. Faint gave a report of the educational committee announcing that over 100 were present at the afternoon session, and that Dr. W. Blum only introduced the subject of "Throwing Power of Solutions," and will present his paper and give full explanation of it at the Providence A. E. S. Convention.

A rising vote of thangs was given the committee for their efforts in making Newark Branch's banquet such a huge success.

The election of officers resulted as follows: President, Royal F. Clark; vice-president, Roy Stout; secretary-treasurer, George Reuter; librarian with two assistants, Edward W. T. Faint, George W. Onksen, William De Voti; trustees, Horace H. Smith, Oliver J. Sizelove, Philip Sievering, Charles Piske, A. Pflomm; sergeant-at-arms, Frank Dressel. Delegates to the Providence Convention were elected as follows: Oliver J. Sizelove, H. H. Smith, Edw. Faint; alternates, Philip Sievering, Royal F' Clark, A. Pflomm.

Discussion upon the Providence Convention and the cause of a nickel deposit upon antimonial lead article turning a dull lead color after use on top of automobile radiators. The article in question is one of the many types which are used standing on top of the cap which covers the opening into the auto raditor.

Mr. S. Glickenhaus will read a paper entitled "Plating of Antimonial-

Lead Articles" at our May 18 meeting. Installation of the new officers will also take place. Meeting adjourned at 11:05 P. M.

Report of Our Banquet

On Saturday, April 21, 1923, Newark Branch held its fifth annual banquet at Achtel-Stetters, the afternoon educational session beginning at 3:30 P. M. The ladies, attending in the afternoon, were guests of Newark Branch, and escorted to the Branford Theatre by Mrs. Royal F. Clark. There were over 100 seated at the session, which was opened by President Oliver J. Sizelove with an address of welcome. Mr. Walter L. Mitchell, Supt. Tiffany Co., chairman of the session, gave a short, interesting address. Dr. W. Blum of the W. S. Bureau of Standards gave an introductory address upon the "Throwing Power in Electro-Plating." At the Providence Convention Dr. Blum will present the paper in full detail and give full explanations.

We regret very much that Dr. Hiram S. Lukens of the University of Pennsylvania, Dr. H. B. North, Mr. George B. Hogaboom, Mr. F. S. Ray and Mr. E. S. Kopp were unable to be present.

Mr. Charles H. Proctor, founder of the A. E. S., being in St. Louis, sent a telegram wishing all an enjoyable time at the banquet.

Mr. Philip Sievering read Mr. Proctor's paper on "Bright Nickel Plating."

Mr. L. Graham gave an interesting address upon the "Distribution of Current in Electro-Plating." Mr. Edward W. T. Faint read his paper on "Master Electro-Platers," and we do not hesitate to state that it was written and read in masterly style.

Mr. John De Mar's paper on "Black Nickel Plating" was excellent.

Mr. George Reuter described his method of gold plating upon articles which have been enameled with a transparent enamel, thus allowing the engine turned and engraved background to be viewed.

Mr. H. H. Smith gave a short address which was of interest to all. All the discussions were taken by a stenographer.

At the banquet in the evening there were 311 persons seated in the large banquet hall, of which 109 were ladies.

Souvenirs, including flowers, perfume, cigars, cigarette cases, envelope openers, pincushions, rolled-gold beauty pins, lead pencils were given out, in addition to the various favors usually distributed. Community singing was indulged in by all, lead by two professional singers. Dancing continued until the wee hours of the morning, when our fifth annual banquet, the greatest ever, became history.

Philadelphia Branch

Philadelphia Branch held its regular monthly meeting May 4, with President George Gehling presiding, and an attendance of 22 members.

This was a very interesting meeting. We had as visitors the superintendent and chemist of an automobile company near Philadelphia, who desired some information on barrel brass plating of small disks. This was cheerfully given, and the visitors were very much gratified for the information and courtesy shown them.

These questions were asked: What effect does gum arabic have in a zinc solution? Answer—That it causes a smooth and bright deposit.

What is the cause of black lacquer peeling off of oxidized screws? Answer—Oxidize with ammonia black instead of sulphite.

The election of officers for 1923-24 resulted as follows: George Gehling, president; D. J. Rathbone, vice-president; Philip Uhl, secretary and treasurer; Samuel Barr, librarian; Wm. J. Bell, C. V. Bayer, W. F. Asimus, board of trustees; Fred Verrelle, sergeant-of-arms; Philip Uhl, Geo. Gheling, W. J. Bell, delegates to conventions; P. Gorling, C. V. Bayer, W. F. Asimus, as alternates.

Detroit Branch

Regular meeting held Friday, May 4, 1923, B. E. Miller presiding in the absence of President O. H. Phelps. Minutes of previous meeting read and approved.

Election of officers resulted as follows: President, B. E. Miller, 2487 Townsend avenue; vice-presidents, W. E. White, 1935 Brainard avenue, and T. C. Eichstaedt, 2621 West Grand boulevard; secretary-treasurer, Elmer W. Woodmansee, 1427 Lee place; librarian, George Kutzen, 1803 Delaware avenue; sergeant-at-arms, Henry Frank, 1990 Ferdinand avenue; board of managers, E. G. Lovering, 3719 Grand River avenue; C. D. Tompkins, 932 Scotten avenue; A. T. Wagner, 230 Tuxedo avenue; delegates to convention, A. E. Shepherd, W. E. White, Elmer W. Woodmansee; alternates, W. M. Phillips, T. C. Eichstaeda, E. G. Lovering.

Under good of order, R. L. Shepard tendered a rising vote of thanks. W. M. Phillips, electro-chemical expert, gave a very interesting talk on general problems. Mr. Phillips is connected with General Motors' organization. Other subjects discussed were rust-proofing of bumpers by nickel, copper, nickel deposit total of 1-100 inch stood salt spray test six days. Bright nickel and exhibits of racks used in same. B. E. Miller told of using 60 drops, or 1 teaspoonful, of a 10 oz. solution, Thio sodium sulphate to 5½ gallons nickel solution to stop streaking of nickel solution that had been contaminated by contact in current tank, where the pitch lining was missing.

Detroit Branch delegates will make a suggestion to research committee regarding a chromium, or nickel chromium solution for rust-proofing. Meeting broke up at a late hour.

St. Louis Branch

At our regular meeting on May 1, the following were elected as officers for next fiscal year: President, F. Menniges; vice-president, G. Powitzky; secretary-treasurer, H. H. Williams; board of managers, E. J. Musick, E. Weil, H. Duebelbeis; delegates to convention, E. W. Heil, E. J. Musick and H. H. Williams; alternates, C. McGinley, E. Mueller and H. Duebelbeis

Under the subject, "Generator and Electrical Equipment," a paper was read by H. J. Richards, then F. Horath gave a paper on "Generator

Construction," with drawings to explain details. Both members were given a vote of thanks for their work.

Montreal Branch

The Montreal Branch has lost one of its faithful members. Mr. Ernest Trudeau died at his home in S. Lambert, at the age of 46, on April 26. He had been in the employment of the Caron Bros. as head foreman for twenty years.

Chicago Branch

The regular monthly meeting of Chicago Branch was held May 12, with our usual large attendance, and in addition to our regular business the election of officers and delegates was the added attraction.

President Bott presided in his usual and genial manner, and all officers were present. Communications from convention committee and Milwaukee Branch were read and the following officers and delegates were elected:

Frank J. Hanlon, president; Jos. Emmett, vice-president; R. J. Hazucha, secretary-treasurer; H. A. Gilbertson, librarian; Robt. Meyers, Hy. Magmes, F. W. Greenwald, board of managers. Delegates—F. J. Hanlon, O. E. Servis, R. J. Hazucha. Alternates—Jas. Emmett, H. J. Bender, E. V. Allen.

The librarian had the following questions in the Mystery Box:

Question Box

Question 1—How can phosphor bronze be oxidized?

Answer 1—Three parts caustic soda, 1 part golden antimony sulphide. This gives a good blue-black on parts after bright dipping.

Question 2—What is cause and remedy of red smut in clean sol.?

Answer 2—It was thought that addition of silicate of soda would help.

Question 3—What makes nickel deposit hard and spongy and hard to buff?

Answer 3—It was thought that sol. was low in metal and too high current used.

Question 4—What is reason for mc. sol. plating dark after adding mc. chloride?

Answer 4—It was thought that addition densified sol. and they needed increased current.

Question 5—What causes matt streaks to form on surface phosphor bronze in bright dip?

Answer 5—It was thought that metal was burnt, and way to eliminate was to pickle in diluted nitric pickle and then bright dip.

Dayton Branch

The regular meeting of the Dayton Branch was held at the Y. M. C. A. on Saturday evening, May 5. As usual the attendance was large. For

the program we had a splendid educational talk in popular language on "Eye Protection," by J. T. Cline, Dayton's most distinguished optometrist. The mechanism of seeing was clearly explained and speaker illustrating his talk with numerous blackboard sketches. Some of the common faults of vision were described and comparisons made to the work of opticians and occulists. The care of the eyes was next explained and the importance emphasized of having perfect vision in order to carry out efficiently the exacting work of the metal finisher. The protection of the eye by the use of proper glasses in order to relieve eye strain was shown to be one of the most important considerations in employing men, maintaining departmental or plant efficiency and eliminating losses due to poor inspection.

The protection of the eyes from poisonous and corrosive fumes and spattering and from particles of dirt and dust in polishing and finishing operations was discussed. The use of goggles made of "non-shattering" glass was advised. Dr. Cline urged everyone approaching the age of 42 years to have their eyes examined for strain as the correction of faulty sight would add years to a man's usefulness and maintain a high degree of fficiency meanwhile. He called attention to the fact that most people see well at a distance, but over 90 per cent. strain with one or both eyes on account of the exhausting and exacting closeness of our every day work. The discussion following the talk proved to be one of the most interesting we have had for some time.

The usual question and answer discussion by the individual members showed a lively interest in the work of the members and the A. E. S. activities. Following this discussion the annual election of officers and delegates for the Providence Convention was held. The following officers were elected to serve 1923-24:

Prsident, M. G. Kopf; vice-president, H. J. Harter; secretary-treasurer, Wm. Hohman; librarian, R. G. Suman; delegates, W. Frain, R. G. Suman and M. G. Kopf.

The meeting was closed by sending a resolution of sympathy to our fellow-member, Mr. J. I. Pace, accompanying a bouquet of flowers.

Connecticut Valley Branch

Monday evening, April 23, was ladies' night for the members of Connecticut Valley Branch, their wives and friends, the occasion being an auction box social, attended by about fifty people.

The party started with a short speech of welcome by Vice-President Vibberts, after which the entertainment began. First, there wer vocal solos by Mrs. Mandeville and Mr. Killoran, which were much enjoyed. Then the dancing pupils of Professor Kennedy held the floor for more than an hour in an exhibition of solo and group dances. There were some twenty children or more in Professor Kennedy's class and they all showed excellent training.

Mr. John Hickey, an old-time Irish comedian, gave ample proof that his heels were not glued to the floor, and his jokes brought down the house.

This completed the entertainment and next Stephie took up his

mallet and proceeded to auction off the lunch boxes to the men, who were privileged to eat with the lady whose lunch box they had bought. As the identification of the boxes was concealed there was an element of surprise in this.

The bidding was lively and it ended in a spirited contest between Stephie and Frank Clark for the last box, which the auctioneer finally sold to himself at the biggest price paid during the evening.

During the evening Bagshaw's orchestra furnished music for dancing. Altogether it was a most successful social, and will become a regular feature of the Connecticut Valley Branch.

Boston Branch

Boston Branch met for the first time since February with Vice-President Gale in the chair.

We had a large meeting and had with us the convention committee from Providence.

After the regular order of business the committee outlined the plans of the convention and asked that every member put his shoulder to the wheel and make this the best convention ever held.

According to the plans of the committee there is a wonderful time in store for all that attend the convention.

The branch ordered the suspension of Ralph C. Barnstead. The meeting adjourned at 10:15 P. M.

Bridgeport Branch

Our last open meeting of the season, April 20, was well attended. Mr. Bolt, whom we expected to talk to us on "Pumice," was unable to appear; therefore, Mr. Geo. Gogaboom addressed us with a talk on the "Discoverer of Nickel Plating, Dr. Adams." To say it was well delivered and well received is putting it mildly. Every day, in every way, Geo. gets better. Mr. Leonard of Waterbury entertained with a monologue on ventroliquism. The program was brought to a close with a talk by Mr. McStevenson, manager American Chain Company of Bridgeport upon the factory side of electro-plating, which proved a very opportune topic by the manner in which it was delivered. A fine lunch was served and smokes enjoyed. A keg of cider right from Mr. Slattery's own press at his Oakdale farm was eagerly sought after most of the evening.

The regular meeting of Bridgeport Branch, May 4, opened at 8 P. M. with the usual officers in the chair and 25 members present. Communications, bills, etc., were read and approved. One new member was lected, Mr. Robert Mooney, 19 Kensington street, New Haven, Conn.

The next order of business was election of officers and the following were chosen: President, J. W. Slattery; vice-presidnt, William J. Flaherty; secretary and treasurer, D. W. Fleming; board of managers, J. Oberender, Wm. G. Stratton and J. M. Dunn; librian, J. Rall; sergeant-at-arms, Geo. Belle. The following delegates were elected for the coming conven-

tion: J. M. Dunn, chairman; J. W. Slattery, Wm. G. Stratton; alternates, Geo. Belle, 1st; Robert Mooney, 2nd; Amos G. Reeves, 3rd.

Bridgeport delegates will go to the convention instructed on three things of importance to the society as a whole, namely: With an amendment as regards the review releasing papers of ten days, figuring if no release there would be more papers written, which would benefit the plater more than under the present rule; also that the per capita tax should not exceed one dollar per member a year; and the expense of the research committee which is an expense that could be dispensed with.

Rochester Branch

We have changed our headquarters from the Seneca to the Powers Hotel, and our meeting nights are now the second and fourth Friday, instead of Saturday, so it will be necessary to change our directory accordingly.

Hope to meet you in Providence.

Regular meeting held at Powers Hotel May 11, with George Hesselink in the chair. Due to the poor attendance the election of officers was postponed to our next meeting.

Mr. Harry Bernard, chairman of the dance committee, reported everything O. K. for our dance, which is to be held May 17.

Under the head of good and welfare the oxidizing of aluminum was discussed. Mr. Frank Speary, who led the discussion, showed some samples which he copper oxidized, using the immersion method for his copper deposit, aluminum castings copper plated by the same method and then nickel plated were also shown. The method used by Mr. Speary is to pickle aluminum in the usual way, then immerse in the following solution until the desired deposit is obtained: Water, 1 gal.; copper cyanide, 7 ozs.; sodium cyanide, 1½ ozs. (as free cyanide); carbonate soda, 2 ozs. This solution to be used at a temperature of 180° F.

Grand Rapids Branch

The regular meeting of Grand Rapids Branch was held May 9, President Van Dyke presiding. Election of delegates to the Providence Convention and the election of officers for the coming year took up the greater part of the evening.

Mr. Walter Allen, Mr. Thomas Oates and Mr. Lawrence Nook were elected delegates; alternates, Mr. Opel Rickson, Mr. John Hawley and Mr. R. J. McMeekin. Mr. Jacob Van Dyke, president of Grand Rapids Branch for the past year, filled that office so successfully that he was re-elected president for the coming year. Charles S. Wholly, secretary-treasurer, was also re-elected. Mr. J. B. Hawley was elected vice-president; Mr. Oxel Rickson, librarian; board of managers, Mr. Charles Werft, Mr. Lawrence Nook and Mr. R. J. McMeeker.

For the good of the order a paper was read on the reaction of a nickel solution and a general discussion followed.

Indianapolis Branch

The branch held its regular meeting May 12. The attendance was fair. The following officers were elected for the coming year: President, R. Hennessey; vice-president, H. Maze; secretary-treasurer, Louis Mertz; librarian, C. Cromer; board managers, B. Aufderheide, J. Walsh and William Cartheuser; delegates to convention, B. Aufderheide, G. Barrows and J. Walsh; alternates, L. Mertz, R. Hennessey and H. Maze.

Boston Branch

Boston Branch met Friday, the 18th, at the American House, with Vice-President Gale in the chair.

The delegates to the convention were named as follows: Louis A. Gale, Andrew Talamona and A. P. Williams; alternates, Philip Nelson, George Heeney and J. J. Evans.

One member was suspended.

The branch expects to have 15 or 20 at the convention.

This being a small meeting it adjourned at 9:45 P. M.

HOTELS AND RATES

PROVIDENCE-BILTMORE—Convention Headquarters

Single room with bath	$4.00-4.50
Double room with bath (double bed)	6.00-6.50
Double room with bath (twin beds)	7.50-8.00-9.00-10.00
Parlor Suite	15.00

NARRAGANSETT HOTEL

Single room without bath	$2.50
Single room with bath	3.00
Double room without bath	4.00
Double room with bath	5.00
Twin beds with bath	6.00
Suites (parlor, bedroom and bath)	10.00

CROWN HOTEL

Single room without bath	$2.50 and upwards
Double room without bath	3.00 " "
Single room with bath	3.00 " "
Double room with bath	4.00 " "

DREYFUS HOTEL

Single room	$2.00-3.50
Double room	3.50-5.00

ELECTED TO MEMBERSHIP

Hartford Branch

Paul C. Kramaruh .....128 Main St., East Hartford, Conn.
Robert Mandeville .....Midian Ave., Windsor, Conn.
Moourad Mosesian .....79 Hamilton Ave., Norwich, Conn.

New York Branch

Thos. Gardner, Active .....171 Uplandt St., Rutherford, N. J.

Montreal Branch

John Issenman .....40 St. George St., Montreal, Canada

Detroit Branch

Bernard F. Lewis .....3450 Eastern Place, Detroit, Mich.

Newark Branch

Edwin B. Anderson .....129 Bloomfield Ave., Bloomfield, N. J.
George H. Sharkey .....18 Baldwin St., Newark, N. J.

Bridgeport Branch

Robert Mooney .....19 Kensington St., New Haven, Conn.

Philadelphia Branch

Willard M. Scott .....2313 N. Brancroft St., Philadelphia, Pa.

APPLICATIONS

Detroit Branch

Benjamin H. Summerfield, Active.....5656 Rogers Ave., Detroit, Mich.

Hartford Branch

Chas. J. Griswold .....Box 525 Westfield, Mass.
Geo. A. Dix .....393 Park St., Hartford, Conn.

Chicago Branch

Thomas Havell, Active .....W. 23rd St., Chicago, Ill.
George Vlasaty, Active .....S. Neff Ave., Chicago, Ill.

Newark Branch

Benjamin W. Gilchrist, Active .....32 Stockton St., Brooklyn, N. Y.
LeRoy E. Sullivan, Associate.....25 Gould Place, Caldwell, N. J.
Henry W. McGovern, Associate.....25 Eckert Ave., Newark, N. J.
Joseph A. Weiss, Associate .....811 Mt. Prospect Ave., Newark, N. J.
W. L. Hults, Associate .....684 South 17th St., Newark, N. J.
Robert Pecoraro, Active .....153 Green St., Newark, N. J.

TRANSFERS

A. Pflomm .....From New York Branch to Newark Branch

SUSPENSIONS

St. Louis Branch

J. J. Spindler J. H. Jordan T. F. Carson

Cleveland Branch

L. A. Graham R. H. Frank

REJECTIONS

Chicago Branch

George Buckshom .....3931 Grand Boul., Chicago, Ill.

BOSTON

Regular meetings are held third Friday of each month, at 8 p. m., at the American House, Boston. Secretary, A. W. Garrett, 821 Dorchester Ave., Dorchester, Mass.

BRIDGEPORT

Meets third Friday of each month in its laboratory, 260 John St., Bridgeport, Conn. Secretary, David Fleming, 97 Roosevelt St., Bridgeport, Conn.

CHICAGO

Meets second Saturday of each month, at 8 p. m., at the Hardware Club of Chicago, Room 1125. Secretary, F. J. Hanlon, 216 N. Jefferson St., Chicago, Ill.

CINCINNATI

Meets on the first and third Friday in each month, Y. M. C. A. Building. Secretary, W. J. Husing, 729 McMakin Ave., Cincinnati, Ohio.

CLEVELAND

Meets last Saturday of each month at Hotel Winton. Secretary, B. F. McCormick, 2024 Wyandotte Ave., Lakewood, O.

HARTFORD

Meets on the fourth Monday of each month at 747 Main St., Hartford, Conn. Secretary, Tennant Elwin, Newington, Conn.

DAYTON

Meets first Saturday of each month at the Y. M. C. A., Dayton, Ohio. Secretary, C. Van Derau, 61 Bish Ave., Dayton, Ohio.

DETROIT

Meets first Friday of each month at the Old Colony Club, 2nd floor, Hotel Tuller. Secretary, E. W. Woodmensee, 1427 Lee Place. Detroit, Mich.

GRAND RAPIDS

Meets on the second Wednesday of each month at the Vocational High School, 129 Bostwick Ave., N.E. Secretary, Chas. S. Whalley, 931 Pine Ave., N.W., Grand Rapids, Mich.

INDIANAPOLIS

Meets the second Saturday of each month at Hotel Denison. Secretary, Louis Mertz, 1725 Union St., Indianapolis, Ind.

MILWAUKEE

Meets second and fourth Thursdays of each month at Lipps Hall, 321 3d St. Secretary, R. Steuernagel, 1508 Concordia Ave., Milwaukee, Wis.

MONTREAL

Secretary, A. Geroux, 48 Craig West, Montreal, Quebec, Canada.

NEWARK

Meets first and third Fridays of each month at No. 17 Central Ave., Newark, N. J. at 8 p. m. Secretary, Royal F. Clark, 71 Chadwick Ave., Newark, N. J.

NEW YORK

Meets second and fourth Fridays of each month at the Broadway Central Hotel Parlors, New York City. Secretary, John E. Sterling, 468 Grand Ave., Long Island City, N. Y.

PHILADELPHIA

Meets first Friday of each month in the Harrison Laboratory Building, University of Pennsylvania, 34th and Spruce Sts. Secretary, P. Uhl, 2432 North 29th St., Philadelphia, Pa.

PITTSBURGH

Meets first Saturday of each month at 8 p. m., at United States Bureau of Mines Bldg., Forbes St. Secretary, S. E. Hedden, 227 Fifth St., Aspinwall, Pa.

PROVIDENCE-ATTLEBORO

Meets first and third Thursday of each month at 26 Custom House St., Room 16. Secretary, C. J. Poyton, 269 Ohio Ave., Providence, R. I.

READING

Meets on the second Tuesday of each month. Secretary, William M. Fisher, 654 Gordon St., Reading Pa.

ROCHESTER

Meets every second and fourth Saturday of each month at the Hotel Seneca. Albert H. Doering, Secretary, 49 Cutler St., Rochester, N. Y.

SYRACUSE

Secretary, M. J. Crean, 109 Court St., Syracuse, N. Y.

ST. LOUIS

Meets first Tuesday of each month at Barr Branch Library, corner Jefferson and Lafayette Sts. Secretary, H. H. Williams, 4156 Botanical Ave., St. Louis, Mo.

TOLEDA

Meets first Thursday of each month at Toledo University Science Building, Electro-Platers' Room, corner Cherry and Page Sts. Secretary, Wm. Grob, Erving St., Toledo, Ohio.

TORONTO

Meets fourth Monday of each month at Canadian Foresters' Hall, 22 College St., Room No. 2. Secretary, E. S. Turner, 873 St. Clair Ave., Toronto, Ontario, Canada.

WATERBURY

Meets every second and fourth Friday of each month. Secretary, Wm. Delage, 47 Prospect St., Waterbury, Conn.

1923
NATIONAL CONVENTION

American Electro-Platers Society

JULY 2-5, Providence, R. I.

(Headquarters—New Biltmore Hotel)

EDUCATIONAL FEATURES

Important Scientific Papers, Discussion of Technical Problems, Exhibit of Special Finishes, Personally Conducted Trips through the plants and plating rooms of the largest factories in the East.

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Historic Providence, Steamer Trip down Narragansett Bay with Shore Dinner at Newport, Municipal Fire Works, National Banquet.

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